City of Newport Beach
Water Quality/Coastal Tidelands Committee Minutes

Date: January 9, 2014
Time: 3:00 p.m.
Location: Newport Coast Conference Room, 2nd Floor, Bay E

1. **Welcome/Self Introductions**
   Committee Members present:
   Chairwoman/Council Member Nancy Gardner
   Carl Cassidy
   Louis Denger
   Fred Galluccio
   Laird Hayes
   Mike Henn/Council Member
   Tom Houston
   George Robertson

   Guests present:
   Jack and Nancy Skinner, SPON
   Jim Mosher, resident
   Monica Mazur, resident
   Wanda Cross, Santa Ana Regional Water Quality Control Board
   Joe Guzman, Orange County Health Care Agency
   Larry Honeybourne, Orange County Health Care Agency
   Amanda Carr, City of Irvine
   Grant Sharp, County of Orange Public Works
   Mike Fennessy, County of Orange Public Works

   Staff present:
   John Kappeler, Water Quality Manager
   Shane Burckle, Water Conservation Coordinator
   Shari Rooks, Public Works Specialist
   Kelsey Kenz, Public Works Administrative Assistant
   David Webb, Director of Public Works
   Bob Stein, Assistant City Engineer
   Chris Miller, Harbor Resources Manager

   The agenda for the Water Quality/Coastal Tidelands Committee was posted at 9:05 am on January 6, 2014, in the binder located in the entrance of the Council Chambers at 100 Civic Center Drive.

2. **Approval of Previous Meeting's Minutes**
   The minutes for November 14, 2013, meeting were approved with a minor correction to the spelling of Orange County Coast Keeper on pages 1 and 2 and minor edits to both bullet points under Item 5, New Business.

3. **Old Business**
   a. **Bay and Ocean Bacteriological Test Results**
      Monica Mazur reviewed recent water quality test results within Newport Bay and along the ocean shoreline. There were quite a few hits in the lower bay on December 30th possibly due to a high tide.

b. **Committee Goals and Priority Update**
John Kappeler asked to move this item to the February 13th meeting with an update on each goal.

4. **New Business**

a. **Wanda Cross**, from the **Santa Ana Regional Water Quality Control Board** gave the Committee an update and presentation on **Adopting a Natural Source Exclusion (NSE)** (See attached PowerPoint).

- The Regional Board has found that the **Natural Source Exclusion Approach (NSEA)** is not specifically defined, but the way that it has been described in the basin plan for Los Angeles and San Diego includes the following basic determining factors:
  - All human sources need to be controlled to the maximum extent possible
  - Applied to MS4, concentrated animal feeding operations and nonpoint source discharges in bacti TMDLs
  - Remaining bacti densities (fecal coliform and enterococcus) do not cause human health risk, even if exceeding standards
- The process for the **NSEA** is established through the Basin Plan, becomes part of the Basin Plan amendment and is incorporated into the Total Maximum Daily Loads (TMDLs)
- **John Kappeler** asked if San Diego or Los Angeles had guidelines that Newport could follow and **Wanda Cross** replied yes - the guidelines are put forth by the discharger and what the discharger proposes to do as far as compliance and noted that the TMDLs do not dictate their formal compliance. Specific (Best Management Practices) BMPs were designed.
- The City could apply for a **NSE** but a review of the available data would be required.
- Another option is the **Reference System and Antidegradation Approach (RSAA)**. It is similar to the **NSEA** with the following differences:
  - **RSAA** should not lower water quality consistent with State antidegradation policies
  - It uses Exceedance Days to determine compliance
  - Exceedance is compared against a reference stream
  - Reference streams must be undeveloped watersheds
- **Joe Guzman** noted that Southern California Coastal Water Research Project (SCCWRP) is working on a beach reference area considering the undeveloped areas between Orange County and San Diego (Camp Pendleton, Las Pulgas andSan Onofre).
- **Amanda Carr** noted that to the best of her knowledge Region Nine has not applied either of the two approaches because they felt both approaches were impractical and not likely to be implemented.
- **Larry Honeybourne** asked if the Regional Board would be revising the TMDLs to include enterococcus and was told yes, they will make it a priority in 2014, but for now the indicator will continue to be fecal coliform. His recommendation to Wanda would be to move away from fecal coliform as a primary indicator of choice as the EPA doesn't believe there is any correlation between elevated levels of fecal coliform and enterococcus. State Board is also looking at this because they are

receiving money from the EPA and the EPA does not recognized fecal coliform as an indicator of risk.

- **George Robertson** asked what was Santa Monica's definition of controlling human sources was and noted that their BMPs were not directly related to human sources.
- **Larry Honeybourne** stated that it might be necessary to use the Quantitative Microbial Risk Assessment (QMRA) to address what the risk in the watershed is if you have cattle, coyote, ducks and birds in the watershed. He does think that the reference beach is an option and the NSE is an option. He suggested the stakeholders get together and look at what Santa Monica and San Diego did and come up with an approach that works for everyone and work together to change the statutes of AB411. The Regional Board adopted AB411 standards in their Ocean Plan 20 years ago and we didn't have the science and technology we have today.
- **Joe Guzman** stated that the first step in the QMRA would be to rule out the human marker and come up with a plan from there.

b. Dave Webb, Director of Public Works, gave the Committee and update and presentation on the **City's Urban Runoff Water Quality Program**. (See attached PowerPoint).

5. Public Comments on Non-Agenda Items

- **Jim Mosher** noted several corrections that needed to be made to the November 14, 2013 meeting minutes.

6. Topics for Future Agendas

(a) Bacteriological Dry-Weather Runoff Gutter Study (Phase III)
(b) Prop 84 ASBS Grant Program
(c) Big Canyon Project
(d) Rhine Channel Project Wrap Up
(e) Senate Bill – SB 1447
(f) Marine Protected Areas (MPAs)
(g) Eelgrass Program
(h) Trash Project for Storm Drains
(i) Harbor Commission Copper Report
(j) Orange County coastal Regional Sediment Management Plan
(k) Fracking Free City
(l) Adopting a Natural Source Exclusion

Set Next Meeting Date

The next meeting date was set for February 13, 2013, at 3 PM in the **Newport Coast Conference Room, Bay E, 2nd Floor.**

7. Adjournment

The meeting was adjourned at 4:50 pm.

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Chairwoman / Nancy Gardner

Natural Source Exclusion: Implications for Newport Bay

Santa Ana Regional Board
Wanda Cross
January 9, 2014

Water Boards

Can NSE be applied to Newport Bay?

Presentation Outline

- Natural Sources Exclusion Approach (NSEA) defined
  - Reference System and Antidegradation Approach (RSAA)
- Examples
- Status of NSE in Santa Ana RB Basin Plan

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Natural Source Exclusion Approach

Background

Issue: bacteria are ubiquitous in the environment

- Sources are both human & wildlife + other non-anthropogenic sources
- Elevated densities in urbanized & natural watersheds
- Beneficial uses , eg, REC-1, must be protected, but it's complicated
- Competing uses need a reasonably balanced approach

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Natural Source Exclusion Approach

Definition

- ALL human sources are controlled
- Applied to MS4, concentrated animal feeding operations, and nonpoint source discharges in bacti TMDLs
- Remaining bacti densities not cause human health risk, even if exceeding standards

4

Natural Source Exclusion Approach

Process

- Incorporated into TMDLs
- TMDL(s) adopted as Basin Plan amendment(s)
  - Allocations for sources
  - Allows phased timing to comply
  - Implementation program
- Compliance Monitoring

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Reference System and Antidegradation Approach

Similar to NSEA

- Differences:
  - RSAA should not lower water quality consistent with State or Federal antidegradation policies
  - Uses Exceedance Days to determine compliance
  - Exceedance compared against a reference stream
  - Reference streams are undeveloped

6

Status of NSEA at Santa Ana RB

- Newport Bay Fecal Coliform TMDL needs revision
- Staff discussed NSEA
- Option we're aware
- Open to the option
- State Water Board will likely consider incorporation into plan or policy

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Can NSE be applied to Newport Bay?

- Appears possible, but more information needed
- Review of existing data
- If RSAA permissible, what reference system?
- Likely, study(ies) necessary
- Develop implementation BPA

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Questions?

Wanda Cross
Santa Ana Regional Board
wanda.cross@waterboards.ca.gov
(951) 782-4468

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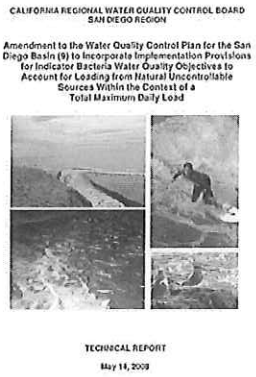
NSE Example - SD RB

May 2008 San Diego RB Basin Plan Amendment

- "...to incorporate implementation provisions for indicator bacteria water quality objectives to account for loading from natural uncontrollable sources within the context of a TMDL."
- BPA authorized RSAA or NSEA during implementation of indicator bacteria water quality objectives within the context of a TMDL.
- Use of NSEA require dischargers implement BMPs to control all anthropogenic sources of indicator bacteria to the target water body such that they do not cause or contribute to indicator bacteria water quality objectives exceedances.


CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

Amendment to the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a Total Maximum Daily Load

TECHNICAL REPORT

May 14, 2008

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NSE Example - LA RB

Santa Monica Beaches TMDL, 2005

NSE was appropriate only after all human influenced sources eliminated –

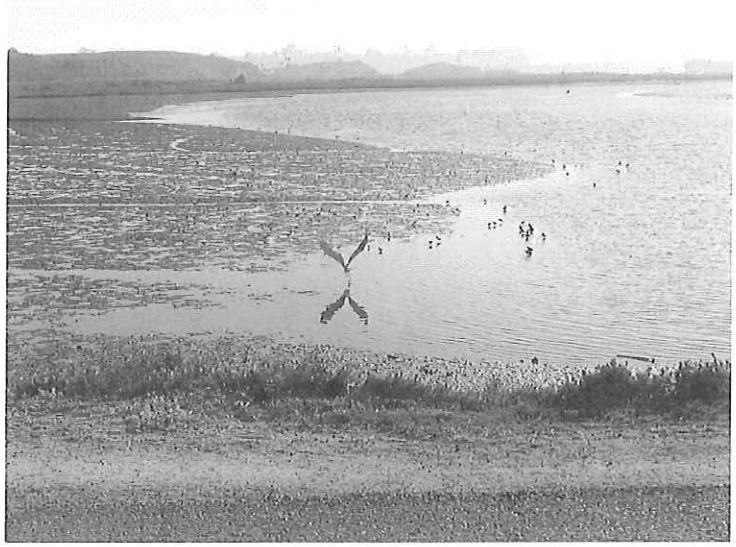
- Stormdrain dry weather flow diverted
- Ponded runoff and sea water from high tide in pond eliminated
- Pigeons/seagulls feeding off garbage or roosting under a pier
- Trash cans
- Illegal wash off
- Leaks
- Microbial demonstration of no human sources


IMPLEMENTATION PLAN

WET WEATHER
SANTA MONICA BAY BEACHES BACTERIA
TOTAL MAXIMUM DAILY LOAD (TMDL)

8

Anthropogenic versus Natural Sources



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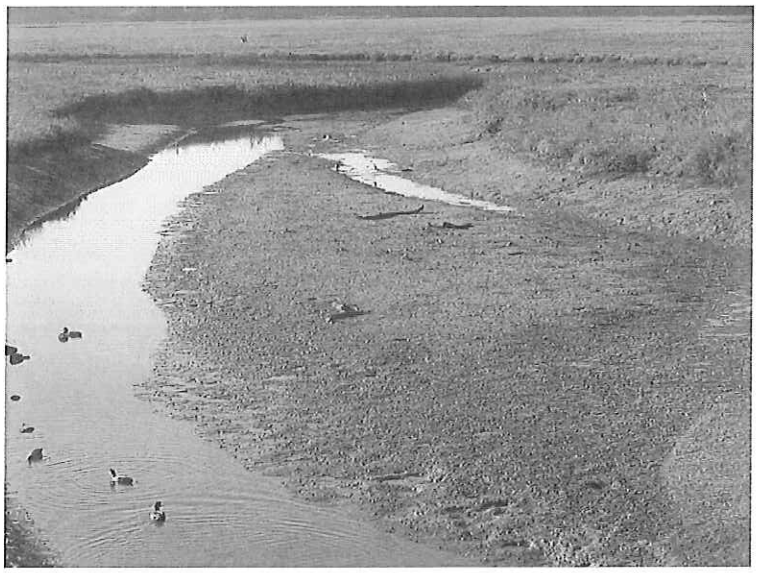
Back Bay



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Back Bay

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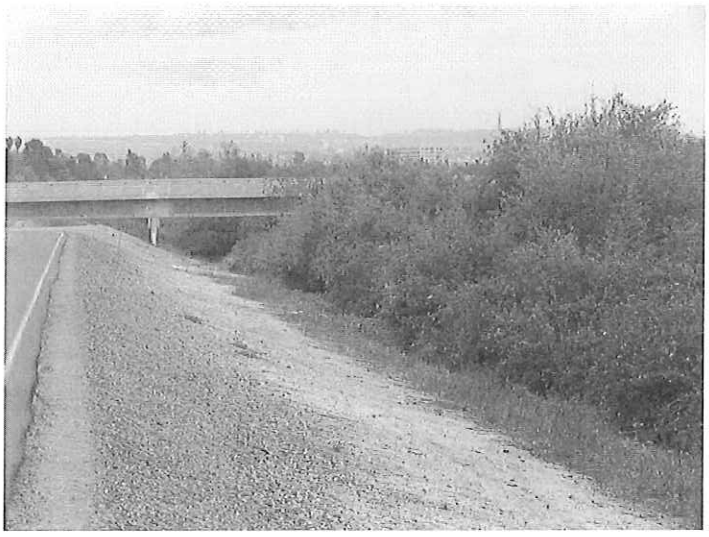
San Diego Creek at Michelson



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City of Newport Beach Urban Runoff Water Quality Program

Public Works Department

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Newport Beach Urban Runoff Water Quality Program

- National Pollution Discharge Elimination System (NPDES) Permit
- Program and Policy Oversight
- Total Maximum Daily Load (TMDL's)
- Other Constituents of Concern
- Capital Projects
- On-Going Maintenance and Operation
- Runoff Reduction
- Community Outreach and Education
- Program Costs
- Results

2

NPDES Permit History

- Clean Water Act Amendment in 1987 (called the Water Quality Act)
- Regulates Discharge of Urban Runoff & Storm Water
- Orange County is Lead Permittee with Cities as Co-Premittee's
- 4th Term Permit Expires 2014 (5-year cycle)
- Currently Starting Next Permit Renewal Process

3

NPDES Permit Requirements Today

- Implement Storm Water Management Programs
- Require Construction Best Management Practices (BMP's)
- Perform Inspections
  - Construction Sites
  - Municipal Facilities
  - Commercial, Industrial and Restaurants
- Perform Enforcement
- Participation in General Permittee Meetings and Sub-Committees
- Conduct Public Outreach and Education
- Submit Annual Progress Report to Regional Board & EPA

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NPDES - Inspections (Construction and Municipal)

In 2013, Staff Conducted

- 643 Construction Site Inspections
  - 168 High Priority Site Inspections
    - Monthly inspections during rain season
  - 475 Low Priority Site Inspections
    - Once per rain season
- 21% of Sites Found Out of Compliance (corrective actions taken)
- 27 Municipal Facility Inspections
  - Once per rain season

**Rainy Season: October – April*

5

NPDES – Inspections (Commercial/Industrial & Restaurants)

In 2013, Staff Conducted

- 59 Commercial Inspections
- 14 Industrial Inspections

- 414 Restaurant Inspections (*Fats, Oil, Grease)*
  - 55 Corrected Violations (13.3%)
  - *2013 Violations* ***Decreased by 18% from 2012***

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Program and Policy Oversight

- City Council
- City Water Quality/Coastal Tidelands Committee
- Newport Bay Watershed Executive Committee and Staff Working Committees
- NPDES Technical Advisory Committee (TAC)
- NPDES Working Group

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Newport Bay Watershed Executive Committee

- Cooperative Partnership to Solve TMDL and Water Quality Issues within Newport Bay Watershed
- Councilmember Gardner Represents City on Executive Committee
- Partners
  - County of Orange
  - City of Newport Beach
  - City of Irvine
  - City of Tustin
  - City of Santa Ana
  - City of Lake Forest
  - City of Costa Mesa
  - Irvine Ranch Water District
  - The Irvine Company
  - CA Dept. Fish & Wildlife

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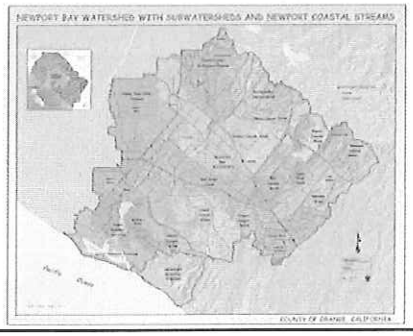
Newport Bay Watershed



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Sediment TMDL

- Issue – Unchecked Sediments being Deposited into Upper and Lower Bay
- Sediment Control Practices Began in 1983.
- Sediment TMDL was Established in 1999.
  - Established Numerical Limits

<< Sediment Accumulation
San Diego Creek between Jeffrey Rd & Sand Canyon Ave

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Sediment TMDL Numeric Targets Compliance

Indicator	Numeric Target	Compliance Summary
Sediment Load to S. D. Creek	62,500 tons (10-yr avg.)	In compliance
Sediment Load into Newport Bay	62,500 tons (10-yr avg.)	In compliance beginning in 2008 (with maintenance of S.D. Creek basins)
Min. Depth In-Bay Unit I/II	-7 ft MSL	In compliance (1998 dredging project)
Min Depth In-Bay Unit II	-7 ft MSL	Out of compliance: 2000 - 2009 In compliance: 2009 – current
Newport Bay * Habitat Acreages	≤1% change	Out of compliance by 2004 survey Continued expansion of saltmarsh 2004 - 2010 Saltmarsh = 350 acres, TMDL baseline = 277 acres (largest extent of saltmarsh since 1989)

* TMDL establishes habitat target as "primary measure of success of the TMDL"

Note: 1 cubic yard of sediment is approximately 2,700 lbs.

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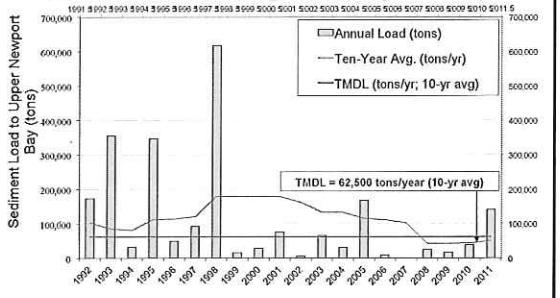
Sediment Loading to Newport Bay



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Nutrient TMDL

- Issue – Excessive Nutrients causing Algal Blooms in Creek & Bay.
- Nutrient TMDL Adopted in 1998
- Nitrogen and Phosphorus Loads to be Reduced by 50% Relative to 1990-1997 Loads.
  - Summer Loads to be Reduced by 50% by 2007
  - Winter Loads to be Reduced by 50% by 2012
- Treatment Methods:
  - Nursery Irrigation Flow Recirculation and Reuse
  - Education of Landscape Maintenance and Gardener Services
  - Natural Treatment System Sites
- **All Targets are Currently Being Met**

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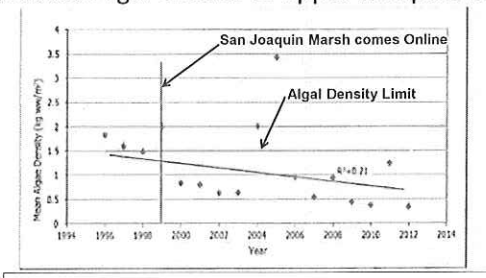
Reduced Algal Growth in Upper Newport Bay



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El Modena Natural Treatment System (El Modena Park, City of Orange)

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Organochlorine Compounds TMDL

- Organocholorine Compounds (OCs) are DDT, PCBs, Toxaphene and Chlordane (Legacy pesticides).
- OCs TMDL Established in 2007.
- Sources of Legacy Pesticides in the Upper Watershed are Disappearing.
- NPDES Storm Water Permit Requires Sampling of Bay Sediments for Toxicity.
- There Appears to be Declining Toxicity in the Bay Sediments.

NOTE:
- **Pesticide Use – Application has been reduced citywide by 29% from 2012**

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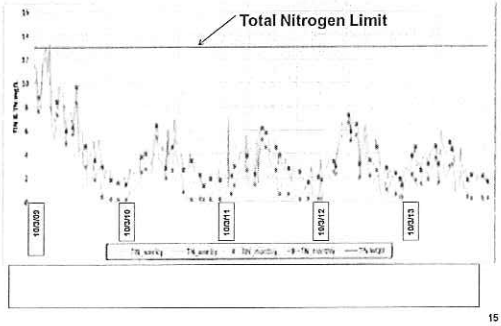
Reduction in Nitrogen Loads



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Fecal Indicator Bacteria (FIB) TMDL

- FIB TMDL Adopted in 1999
- Originally Four Permanent Water Quality Postings in the Bay
- TMDL is for Fecal Coliform Only
- TMDL Currently Does Not Consider Natural Sources* of Indicator Bacteria

***Natural Sources of FIB are defined as:** *FIB that are released into the environments from wildlife or plant species, or through growth and replication.*

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Fecal Indicator Bacteria (FIB) TMDL

Long Term Water Quality Advisory Posting Removed

Long Term Water Quality Advisory Posting Remaining

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Other Constituents of Concern

Selenium ?

Copper ?

Trash ?

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Status of FIB TMDL

- Three Permanent Postings Removed
- One Remaining Posting: Arches Drain
  - Investigation Underway
- Bio-Film Study is Underway
- Current Status: County to Submit FIB Modification Recommendations to RWQCB

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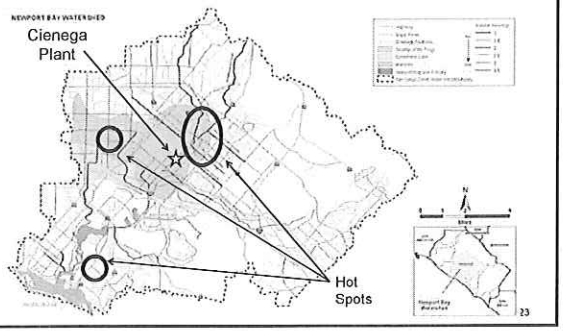
Selenium Hot Spots



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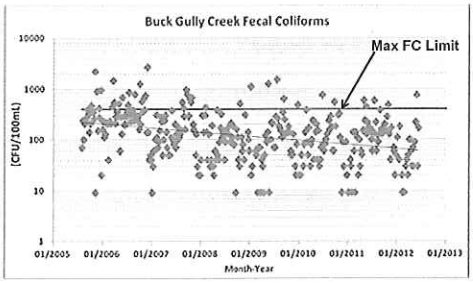
Decrease in Bacteria Concentrations at Little Corona Beach



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Selenium in Big Canyon

- High Selenium Concentrations found in Watershed in 2008
- Concentrations over 140 ppb found in the Port Streets
- High Conversion of Selenate to Selenite which is more Bioavailable.
- While not yet formally covered under a TMDL, the City has Created and is implementing a Work Plan that has been reviewed by the Regional Board.

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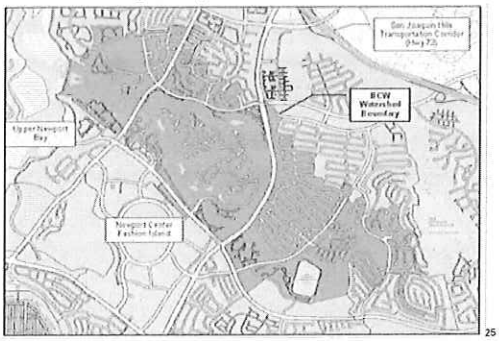
Big Canyon Watershed



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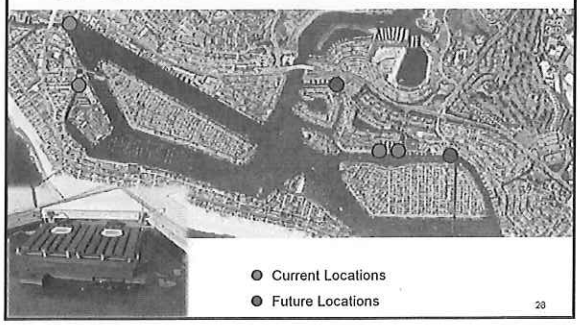
Lower Harbor Trash Skimmers

OCTA Grant Funded Skimmer Units



- Current Locations
- Future Locations

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Big Canyon Selenium Mitigation: Projects on the Immediate Horizon

- Runoff Reduction Program (on-going)
- Hot Spot Diversions to Sanitary Sewer (under-way)
- Golf Course Lake Mixing Devices (under-way)
- Stream Restoration in Lower Big Canyon (starting planning)
- Future of CA Fish & Wildlife Wetlands (? – in discussion)
- Possible Selenium Bioreactor (planning – if needed)

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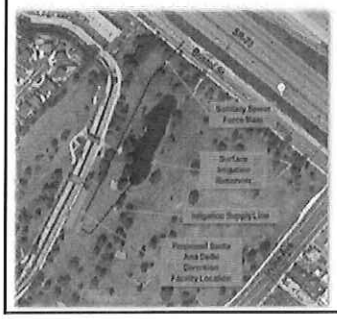
Santa Ana-Delhi Channel
Trash Collection & Low Flow Diversion Project



Project Partners
- City of Santa Ana
- County of Orange
- City of Newport Beach
- City of Costa Mesa

Project Goals
- Trash Collection
- Dry Weather Diversion
- Selenium Reduction

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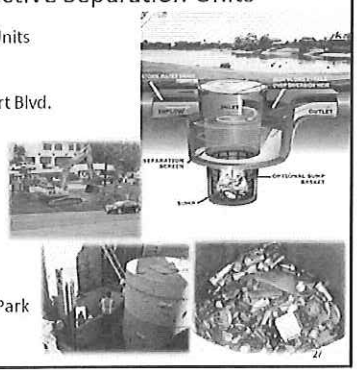
Continues Deflective Separation Units

OCTA Grant Funded CDS Units

- Current Installation
  - Two units on Newport Blvd.
- Pending Installations
  - Balboa Coves
  - Dover Dr.
  - Domingo Dr.
  - Newport Dunes
  - Pelican Point
  - Carnation / Begonia Park

Total Units Citywide > 30



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Buck Gully Restoration Project

Project Goals
- Stabilize Streambed and Canyon Slopes
- Reduce Sediment Erosion
- Adsorb and Sequester Selenium
- Remove Bacteria by Adsorption
- Remove Invasive Plants
- Restore Canyon with Native Plants

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Reef Point Infiltration Gallery

Project Goal

- Collect and Treat Parking Lot Runoff

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Street Sweeping

- 35,605 Curb Miles Swept
- Removed 8,748 Tons (dry) Trash & Debris

Household Hazardous Waste Collection

- 38,000 pounds of E-waste
- 1,180 gallons of motor oil
- 250 used oil filters

Reporting Year – FY2012/13

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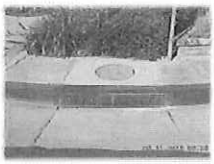
Annual Drainage System Cleaning

- Annually Clean 17,090 ft of Drainage Channels and 3,255 Catch Basins (removed 455 tons trash & debris 2012/13 season)
- Install 435 Debris Gates on Catch Basins around City in Dry Season



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Irrigation Runoff Reduction Program

Goal: Reduce Irrigation Runoff Citywide.

Current Emphases on Buck Gully, Coastal Corona Del Mar, Big Canyon through...

- Education
- Irrigation Audits
- Install High Efficiency Nozzles
- Program Controllers to Site Specific Runoff Times
- Weather Station Based Irrigation Controller Installation

Sanitary Sewer Maintenance Program

- Started Regular Sewer Line Surveying 2003
- City Invested in Truck and Camera Equipment
- Regular Review and Cleaning of 1,072,019 ft of City Sewer Mains
- Install and Maintenance of 5 Public Pump-Out Station in Harbor
- 10 Year Monitoring Plan
- Oldest Pipe Laid in 1929

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Runoff Reduction Program

Goal: Reducing Runoff Saves Water and Improves Receiving Water Quality.

Between 2011 and 2013

- 1,130 Water Audits and Evaluations
- 1,169 Weather Stationed Based Irrigation Controllers Installed
- 951 Customers Served with a 84% Customer Buy-In Rate
- $1.5 Million in Grant and Rebate Funding
- 85,725 High Efficiency Nozzles Installed.
- Savings: 110 million gallons of water per year, enough to fill over 7,000 swimming pools.

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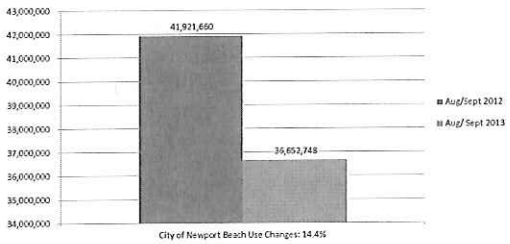
Runoff Reduction Program

14.4% Reduction in Use
5,268,912 Gallons Saved



WQ Report Card

- Nutrient TMDL: A
- FIB TMDL: A-
- Organochlorine Compounds TMDL: B
- Selenium: B+
- Copper U

- Look for grant funds for Big Canyon projects.
- Review studies to confirm copper boat paint is not a water or sediment hazard.

WQ Report Card

- NPDES Program – A
- Runoff Reduction - A

- Reduce costs for inspections and reporting.
- Continue to expand the runoff-reduction program.

Annual WQ Related Program Costs

• NPDES and TMDL related fees	$400,000
• Street Sweeping	$450,000
• Storm Drain Guards/Cleaning	$150,000
• Canyon and ASBS monitoring (approx.)	$50,000

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WQ Report Card

- Sediment TMDL: B+

- Take sediment out of the Jeffrie Basin and remove maintenance responsibilities for the In-Channel Basins.
- Support projects to reduce transport of fine sediments to the Bay.

WQ Program Costs

- 2004-2014 Projects and Programs $14,000,000 (55% grant funded)

1. Runoff reduction programs
2. CDS units
3. Newport Coast infiltration projects
4. Canyon restoration projects
5. Newport Boulevard bioswale
6. Little Corona tidepools restoration
7. Traveling Tidepools (coming 2014)
8. HAMP and Integrated Watershed Management Programs

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Public Education & Community Outreach

Water Quality and Conservation

- Grade & High School Watershed Education
- Community Surveys
- Contests/ Drawings – Irrigation Makeover
- Public Service Announcements
- Workshops
- Billing Inserts
- Water Use Comparisons (like properties)
- Volunteer Opportunities (Habitat Restoration)
- HOA /Community Association Engagement
- Community Events
- Rebate Programs

Questions

Public Works Department

Protecting and Providing
Quality Public Improvements and Services

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Public Education & Community Outreach

- Regional Education and Awareness Program Conducted by Orange County
- Advertisement Campaigns
- 3.2 Million Impressions County Wide in 2012

Results: Newport Bay WQ is Very Good

Heal the Bay

BEACH REPORT CARD

Orange County Honor Roll Beaches	
Surfside Beach, projection of Sea Way	Balboa Beach, The Wedge
El Moro Beach	Blue Lagoon
Camel Point	Laguna Lido Beach
9th Street 1000 Steps Beach	San Clemente Trafalgar Canyon

Newport Beach made Heal the Bay's 2012/13 Honor Roll List!

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Health Care Agency / Environmental Health Newport Bay Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform, Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		9/9/13	9/16/13	9/23/13	9/30/13	10/7/13	10/15/13	10/21/13	10/30/13	11/4/13	11/12/13	11/18/13	11/25/13	12/2/13	12/9/13	12/16/13	12/23/13	12/30/13	1/6/14
NEWPORT BAY (Lower Bay)														RAIN	RAIN	RAIN				
BNB09	43rd Street Beach	TC	40	30	<10	50	20	>230	70	50	10	20	<10	140	20	200	20	40	50	20
		FC	<10	<10	<10	<10	<10	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	20	4	<2	10	8	10	<2	6	10	4	10	<2	10	20	4	4	2	6
BNB10	38th Street Beach	TC	50	7400	40	20	>60	80	10	>1850	50	10	20	60	60	140	20	<10	>390	<10
		FC	<10	140	<10	<10	<10	30	<10	250	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	4	279	<2	2	10	36	2	76	20	2	20	2	48	20	10	2	246	2
BNB11	33rd Street Channel	TC	10	>1660	10	20	40	60	<10	70	20	>5600	<10	60	>130	>370	70	330	130	<10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	10	<10	10	<10	50	<10
		ENT	2	100	<2	<2	2	2	2	10	<2	600	<2	<2	68	24	44	2	46	4
BNB32	Lido Yacht Club Beach	TC	30	10	>10	>10	>10	>80	>10	20	<10	10	10	70	80	>1500	<10	<10	40	<10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	10	<10	<10	<10	<10
		ENT	<2	<2	2	<2	2	2	100	4	2	<2	<2	<2	<2	6	4	<2	<2	<2
BNB07	Via Genoa Beach	TC	40	60	<10	10	10	160	<10	20	20	>380	<10	60	60	>630	10	30	220	20
		FC	<10	<10	<10	<10	<10	<10	<10	<10	30	10	<10	<10	10	10	<10	<10	50	<10
		ENT	20	4	<2	<2	<2	<2	2	4	4	8	2	<2	34	86	<2	4	>56	10
BNB35	Newport Blvd. Bridge	TC	4600	670	5400	60	40	>430	60	>650	320	>940	20	6000	>330	>940	>720	10	>8000	2800
		FC	60	<10	20	<10	<10	50	<10	<10	10	<10	<10	10	30	<10	50	<10	160	<10
		ENT	76	<2	2	<2	<2	48	2	>32	2	92	<2	8	78	38	140	10	2000	2
BNB12	Rhine Channel	TC	20	10	10	60	150	60	10	20	560	10	<10	120	<10	>1480	10	400	40	70
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	<10	<10	<10	<10
		ENT	2	<2	<2	<2	8	<2	<2	<2	4	8	<2	<2	<2	<2	<2	<2	<2	<2
BNB14	19th Street Beach	TC	50	95	<10	30	<10	70	40	<10	100	>130	<10	120	30	>1910	<10	10	<10	<10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	30	<10	<10	<10	<10	120	<10	<10	<10	<10
		ENT	4	<2	<2	20	<2	<2	<2	<2	52	20	<2	10	10	86	<2	<2	2	<2
BNB15	15th Street Beach	TC	10	20	<10	10	10	95	<10	80	30	60	<10	150	95	>140	20	10	>100	30
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10	>80	<10
		ENT	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	4	10	8	<2	50	<2
BNB17	10th Street Beach	TC	10	20	110	10	20	120	<10	30	40	>380	<10	190	60	>8000	80	10	10	10
		FC	<10	<10	<10	<10	<10	<10	<10	30	<10	<10	<10	<10	<10	50	20	<10	<10	<10
		ENT	2	4	10	<2	<2	2	<2	<2	2	70	<2	<2	2	24	2	2	<2	<2
BNB18	Alvarado/ Bay Isle Beach	TC	95	10	40	20	<10	<10	10	20	50	<10	<10	80	50	>1210	10	30	2200	40
		FC	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	2400	20
		ENT	4	100	<2	2	<2	4	4	<2	4	4	2	<2	4	<2	2	2	2000	4
BNB22	N Street Beach	TC	<10	10	<10	20	10	<10	20	10	<10	<10	10	30	30	>220	10	10	>150	10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	2	<2	<2	<2	2	2	<2	<2	<2	<2	2	<2	<2	<2	6	<2	130	<2
BNB31	Garnet Avenue Beach	TC	10	20	>30	20	>10	>390	<200	>40	70	10	>20	120	170	>1480	10	20	60	<10
		FC	<10	<10	<10	<10	10	20	<10	10	<10	<10	<10	<10	40	10	<10	<10	<10	<10
		ENT	4	<2	<2	140	2	66	8	4	20	2	<2	4	100	10	50	<2	279	8
BNB03	Ruby Avenue Beach	TC	60	20	80	20	<10	190	20	100	80	30	50	50	4800	>480	<10	100	330	<10
		FC	<10	<10	<10	<10	<10	10	<10	<10	20	<10	<10	<10	740	30	10	20	50	<10
		ENT	<2	<2	2	2	<2	<2	<2	<2	62	2	10	2	>52	2	<2	<2	6	2
BNB20	Sapphire Avenue Beach	TC	>10	20	40	>10	<10	20	20	360	10	>300	10	180	40	380	10	50	40	130
		FC	<10	<10	<10	<10	<10	<10	<10	80	<10	30	<10	20	<10	20	20	<10	<10	80
		ENT	2	<2	10	6	2	10	48	4	24	32	<2	4	10	10	6	2	10	2
BNB34	Grand Canal	TC	690	30	70	40	50	60	40	>360	20	40	60	210	40	>80	50	100	80	360
		FC	510	<10	30	<10	<10	<10	<10	20	<10	10	<10	100	<10	60	10	70	<10	<10
		ENT	10	<2	8	2	<2	6	4	<2	2	8	2	<2	10	180	4	<2	36	20
BNB21	Abalone Avenue Beach	TC	40	40	>310	120	10	120	<10	>490	20	270	>140	110	10	>770	20	20	60	<10
		FC	<10	10	210	<10	<10	40	<10	10	<10	80	10	10	20	<10	10	<10	<10	<10
		ENT	<2	<2	<2	2	<2	2	<2	4	10	4	4	20	34	4	4	2	6	2
BNB01	Park Avenue Beach	TC	20	30	<10	30	10	110	80	>320	20	30	<10	60	70	4800	10	20	50	<10
		FC	<10	<10	<10	20	<10	<10	<10	10	<10	10	10	10	<10	210	<10	<10	<10	<10
		ENT	2	2	<2	4	2	4	10	2	2	22	6	<2	2	10	<2	<2	<2	2
BNB02	Onyx Avenue Beach	TC	60	20	20	80	20	160	10	220	300	10	60	80	180	>610	20	80	150	30
		FC	<10	<10	<10	<10	10	<10	<10	<10	10	<10	10	<10	10	10	<10	<10	10	<10
		ENT	2	<2	<2	4	<2	4	<2	8	100	10	60	2	50	40	2	2	150	4
BNB29	Promontory Point Channel	TC	<10	<10	<10	<10	20	10	<10	10	50	<10	<10	10	40	<10	<10	<10	<10	10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
		ENT	<2	<2	<2	4	<2	2	<2	<2	2	2	<2	4	<2	<2	<2	<2	<2	<2
BNB33	Bayside Drive Beach	TC	>120	50	200	>60	>10	>360	95	110	>40	>95	95	40	20	40	40	20	160	40
		FC	20	10	60	10	<10	<10	<10	<10	<10	<10	<10	<10	10	<10	20	<10	150	<10
		ENT	4	32	8	8	10	66	4	60	68	8	6	6	10	8	10	6	10	2
BNB23	Rocky Point Beach	TC	60	<10	<10	20	10	70	>20	<10	<10	30	10	60	>10	70	20	20	80	10
		FC	<10	<10	10	<10	<10	20	<10	<10	<10	<10	<10	10	<10	<10	<10	<10	10	<10
		ENT	7	<2	<2	2	<2	8	20	8	2	2	<2	<2	<2	22	<2	2	8	<2

NS - NOT SAMPLED
LA - LAB ACCIDENT
Cw/(o)C- CONFLUENT GROWTH WITH(OUT) COLIFORMS
TNTC - TOO NUMEROUS TO COUNT

New Data
Single Sample Standard Violation.
Long-term Posting Location.
Creek/Drain Sample Location.
Rain Influenced Data.

SINGLE SAMPLE STANDARDS:
Total Coliforms - 10,000 organisms per 100 milliliters sample.
Fecal Coliforms - 400 organisms per 100 milliliters sample.
Enterococci - 104 organisms per 100 milliliters sample.
Fecal:Total Ratio - >1000 total coliforms if ratio exceeds 0.1.

30-DAY LOG MEAN STANDARDS (of five weekly samples)
Total Coliforms - 1,000 organisms per 100 milliliters sample.
Fecal Coliforms - 200 organisms per 100 milliliters sample.
Enterococci - 35 organisms per 100 milliliters sample.

Health Care Agency / Environmental Health Newport Bay Bacteriological Monitoring Program
Total Coliform (TC), Fecal Coliform (FC), Enterococcus (ENT) Colony Forming Units / 100 ml Sample

STATION	Location Description		9/3/13	9/9/13	9/16/13	9/23/13	9/30/13	10/7/13	10/15/13	10/21/13	10/30/13	11/4/13	11/12/13	11/18/13	11/25/13	12/2/13	12/9/13	12/16/13	12/23/13	12/30/13	1/6/14
NEWPORT BAY (Upper Bay)															RAIN	RAIN	RAIN				
BNB24	Newport Dunes - Middle	TC	>730	110	70	1120	160	<10	>440	40	>260	110	100	95	670	>340	40000	10	>170	30	20
		FC	<10	20	<10	<10	20	<10	60	<10	10	<10	<10	40	20	<10	960	10	20	<10	<10
		ENT	<2	2	10	4	4	<2	10	2	<2	<2	6	4	28	4	244	2	56	<2	10
BNB24	Newport Dunes - West	TC	>660	160	120	170	>1470	>130	>530	30	>770	110	30	30	900	>320	>32200	30	3800	20	80
		FC	120	<10	<10	30	260	<10	<10	<10	<10	20	10	30	50	10	1170	10	2800	10	<10
		ENT	10	2	6	10	96	10	<2	2	6	2	4	10	38	2	327	10	36	8	8
BNB24	Newport Dunes - East	TC	>10	>80	>28000	40	60	20	>370	30	>370	70	>150	80	1150	250	>38000	2400	40	<10	80
		FC	<10	10	6000	<10	10	<10	10	20	100	<10	30	10	760	80	950	1480	<10	10	10
		ENT	2	10	234	2	10	2	32	4	84	10	120	10	20	22	140	26	20	20	20
BNB24	Newport Dunes - North	TC	>160	20	30	70	>30	20	>470	50	>370	10	20	10	450	>320	40000	40	>140	50	70
		FC	30	<10	10	<10	20	<10	<10	<10	20	<10	<10	<10	40	20	1100	10	10	50	10
		ENT	<2	<2	6	4	8	<2	8	6	2	2	2	4	4	6	295	8	32	4	10
BNB25	Vaughn's Launch	TC	>20	NS	10	NS	NS	10	>360	<200	>10	>30	>10	>20	NS	300	>12000	30	NS	<10	NS
		FC	<10	NS	<10	NS	NS	<10	10	10	<10	<10	<10	<10	NS	40	460	20	NS	30	NS
		ENT	<2	NS	4	NS	NS	6	<2	<2	10	20	28	6	NS	80	>96	10	NS	10	NS
BNB26	Ski Zone	TC	<200	NS	NS	NS	NS	NS	>7400	NS	NS	>100	NS	110	NS	>170	NS	>130	NS	NS	NS
		FC	<10	NS	NS	NS	NS	NS	590	NS	NS	10	NS	<10	NS	<10	NS	30	NS	NS	NS
		ENT	2	NS	NS	NS	NS	NS	600	NS	NS	42	NS	24	NS	44	NS	150	NS	NS	NS
BNB28	North Star Beach	TC	10	<10	10	50	<10	>10	>470	<10	30	60	20	10	1070	>250	>40000	10	>80	110	20
		FC	<10	<10	10	10	<10	<10	30	<10	<10	20	<10	<10	80	40	4800	<10	<10	20	<10
		ENT	80	6	<2	2	2	4	10	6	10	8	8	6	8	8	1000	4	10	2	4
BNB30	De Anza	TC	20	10	10	10	10	<10	60	10	10	>1280	<10	10	510	80	>22800	<10	60	20	10
		FC	<10	<10	<10	<10	<10	30	<10	<10	<10	260	<10	<10	10	20	380	<10	<10	<10	10
		ENT	4	6	<2	4	<2	<2	6	<2	<2	271	2	<2	4	<2	180	<2	4	<2	4
BNB05	Bayshore Beach	TC	30	20	10	60	10	20	110	20	20	80	20	10	50	70	>18000	20	60	<10	<10
		FC	<10	<10	<10	<10	<10	<10	<10	<10	10	<10	<10	<10	10	<10	210	10	10	<10	<10
		ENT	2	6	<2	6	<2	<2	4	<2	4	10	<2	<2	<2	4	110	<2	2	<2	<2
NEWPORT BAY TRIBUTARIES																					
CNBCD	San Diego Creek - Campus Dr.	TC	>90	>20	100	>90	>120	>100	>47000	>5300	>90000	>3200	>390	>3800	>7000	>4300	48000	>3000	>4900	>3400	>2200
		FC	10	<10	10	20	20	20	>580	>95	910	50	50	30	410	240	6400	180	170	700	300
		ENT	22	24	20	36	26	32	64	54	380	22	42	24	190	44	7400	74	216	54	68
CNBSA	Santa Ana Delhi Channel	TC	>680	>670	5000	>3400	>4800	>3900	>58000	>4300	>4800	>3000	>4800	>28000	>4600	>7400	70000	>4500	>7800	>3800	>930
		FC	190	30	190	460	160	10	>14000	140	160	200	440	180	160	170	1180	60	210	280	80
		ENT	150	54	>251	160	1000	180	1000	120	281	800	255	100	170	311	1000	180	251	228	76
CNBBC	Big Canyon Creek	TC	>4000	>760	4000	NS	NS	>950	>960	>660	>2800	640	>490	>480	>620	>720	>740	>420	>530	>290	>300
		FC	100	20	100	NS	NS	50	140	10	100	30	30	10	70	190	>700	<10	220	80	20
		ENT	160	180	48	NS	NS	26	120	70	1000	110	110	94	150	86	40	70	220	78	62
CNBND	Backbay Drive Pipe	TC	NS	NS	>15000	>40000	>13000	>5400	>470	>5600	>22600	>1220	>1520	6200	4400	>1230	>660	>960	>370	>510	>570
		FC	NS	NS	1840	26800	1170	730	60	>660	>490	370	80	470	140	110	40	20	10	30	10
		ENT	NS	NS	3400	18000	8000	1000	100	600	1000	277	190	317	253	>200	283	80	110	96	76
NEWPORT SLOUGH			9/3/13	9/10/13	9/17/13	9/24/13															
BNS01	Lancaster Street &	TC	>150	>130	10	60	80	20	>120	40	120	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	61st Street	FC	<10	20	<10	<10	10	<10	10	<10	<10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		ENT	2	<2	10	10	22	4	8	<2	52	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BNSO2	Lancaster Street &	TC	<10	>40	<10	20	30	50	50	50	>320	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Canal Street	FC	<10	<10	<10	10	<10	20	30	<10	20	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
		ENT	<2	6200	22	20	20	72	52	10	86	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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WITH(OUT) COLIFORMS
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Long-term Posting Location.
Creek/Drain Sample Location.
Rain Influenced Data.

30-DAY LOG MEAN STANDARDS (of five weekly samples)
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OCSD Bacteriological [illegible]n Monitoring Program
Total Coliform (TC), Fecal Coliform (FC),
Enterococcus (ENT) Colony Forming Units/100 ml Sample

DATE		9/3	9/4	9/10	9/11	9/17	9/18	9/24	9/25	10/1	10/2	10/8	10/9	10/15	10/16	10/22	10/23	10/29	10/30	11/5	11/6	11/12	11/13	11/19	11/20	11/25	11/26	12/3	12/4	12/10	12/11	12/17	12/18	12/26	12/27	12/30	
Location/Tide																																					
Bolsa Chica	TC	17		<17		17		<17		33		<17		<17		<17		17		<17		17		17		<17		17		<17		<17		17		270	
Beach	FC	33		<17		17		<17		<17		<17		<17		<17		17		<17		17		<17		<17		<17		<17		<17		<17		170	
39N	ENT	22		2		34		<2		4		2		2		<2		2		2		<2		<2		<2		2		2		<2		<2		6	
Bolsa Chica	TC	<17		33		17		<17		<17		17		<17		<17		220		<17		17		17		<17		17		<17		17		17		<17	
Reserve	FC	17		17		<17		<17		<17		17		<17		<17		130		17		<17		<17		<17		<17		<17		<17		<17		17	
33N	ENT	16		18		56		<2		10		4		2		4		72		4		4		6		2		8		4		<2		2		2	
Bluffs	TC	17		<17		<17		<17		<17		<17		<17		<17		<17		<17		120		<17		33		17		<17		<17		<17		<17	
27N	FC	<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		83		<17		17		<17		<17		<17		<17		<17	
	ENT	20		2		14		2		4		4		4		2		<2		<2		38		2		<2		4		20		<2		12		28	
17th Street	TC	50		<17		<17		<17		<17		<17		17		<17		<17		<17		<17		17		33		33		<17		<17		<17		120	
21N	FC	<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		17		17		67		67		<17		17		<17		50	
	ENT	22		10		4		2		2		2		8		<2		2		8		32		<2		<2		8		6		52		36		52	
Jacks Snack	TC	67		<17		<17		<17		<17		17		17		17		17		67		33		<17		17		50		<17		17		<17		17	
Bar	FC	50		<17		<17		17		17		<17		<17		<17		17		<17		<17		<17		<17		67		<17		<17		<17		50	
15N	ENT	32		2		6		2		4		4		12		8		<2		6		2		<2		<2		50		6		4		<2		12	
Beach Blvd.	TC	<17		17		<17		<17		<17		<17		50		<17		17		<17		67		33		<17		100		<17		17		<17		50	
12N	FC	50		<17		<17		17		17		17		<17		<17		<17		<17		50		<17		<17		17		<17		<17		<17		17	
	ENT	20		2		8		<2		8		2		8		6		<2		22		14		<2		<2		40		2		2		<2		18	
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6N	ENT	10	2	6	12	10	10	<2	10	<2	2	6	2	30	26	4	2	10	24	12	4	26	28	40	4	<2	6	94	54	<2	4	52	34	<2	2	10	30
Brookhurst	TC	33	33	17	33	33	680	17	33	50	400	33	17	<17	50	<17	<17	17	440	17	<17	33	280	<17	67	17	17	67	100	<17	<17	<17	17	17	33	67	620
3N	FC	17	<17	17	120	120	420	<17	50	50	270	50	17	<17	<17	<17	17	33	170	<17	17	50	130	<17	50	50	33	17	17	<17	17	<17	<17	<17	50	50	420
	ENT	34	8	8	12	86	282	4	12	32	44	26	20	4	14	2	4	12	174	6	4	18	96	2	16	2	2	18	36	<2	4	6	6	2	14	8	102
Santa Ana	TC	<17	<17	1500	<17	200	400	17	<17	17	50	17	180	<17	33	<17	<17	17	17	<17	<17	50	17	<17	<17	17	100	17	67	100	17	<17	17	<17	<17	180	33
River Mouth	FC	<17	<17	1100	33	200	520	<17	<17	17	33	17	170	<17	<17	<17	<17	<17	17	17	<17	50	50	<17	33	<17	150	<17	17	33	<17	17	<17	50	<17	50	17
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Orange	TC		<17		<17		17		17		33		67		17		<17		33		17		50		<17		<17		50		<17		<17		<17		17
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52nd/53rd	TC		17		<17		100		<17		17		<17		<17		<17		120		<17		<17		17		17		33		17		17		17		33
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38th Street	TC		<17		<17		33		50		<17		<17		17		<17		17		<17		17		33		17		17		<17		17		<17		<17
9S	FC		<17		<17		<17		17		<17		17		17		<17		17		<17		17		<17		<17		17		<17		<17		<17		<17
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Balboa Pier	TC		<17		17		<17		<17		<17		<17		<17		<17		150		<17		17		<17		150		17		<17		33		50		<17
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The Wedge	TC		<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		<17		33		<17		<17
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Corona Del	TC		<17		<17		<17		<17		17		<17		17		<17		50		17		<17		<17		<17		17		<17		<17		33		<17
Mar Beach	FC		<17		<17		17		<17		17		<17		50		<17		33		<17		<17		<17		<17		<17		<17		17		<17		17
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Crystal Cove	TC		17		<17		17		<17		<17		67		<17		<17		17		<17		17		<17		<17		17		<17		1200		<17		<17
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SPRING TIDES

NEW DATA

SINGLE SAMPLE STANDARD VIOLATION

N/S NO SAMPLE / NO DATA

CWOS CONFULENT GROWTH WITHOUT SHEEN

CWS CONFULENT GROWTH WITH SHEEN

CWB CONFULENT GROWTH WITH BLUE (FECAL INDICATOR)